

Remarks

Claims 1-2, 5-7, 9-11, 22-26 and 33-41 are currently pending in the Application and withdrawn Claims 3-4 and 8 remain as they depend from elected Claim 1, which, for the reasons stated in this response, is expected to be allowed by the Examiner. Hence, Applicants expect withdrawn Claims 3-4 and 8 to be allowed if the Examiner finds Claim 1 to be allowable.

Allowable Claims

Applicants acknowledge with gratitude the Examiner's indication of allowability as to Claims 2, 7, 9-11 and 41.

Telephone conference

Applicants thank the Examiner for the many courtesies extended during the telephone conference held with the undersigned, Attorney Alex Krayner, on February 6, 2008. During the telephone conference it was agreed that the cited reference Shoyu (JP 2004-138996) does not qualify as prior art.

35 U.S.C. §102(b) rejection

Claims 6, 22-23, 25 and 35-40 stand rejected under 35 U.S.C. §102(b) as being anticipated by Bloom (U.S. Patent No. 5,808,797). Applicants respectfully disagree. Applicants submit that the Examiner has not shown that Bloom teaches each and every element as set forth in the rejected claims. In particular:

Claim 6

A. Applicants submit that the Examiner has not shown that Bloom discloses, suggests or teaches, *inter alia*, the following features recited by Claim 6 of the present application:

“a **retro-reflecting structure** including a substrate and a moveable grating structure” (emphasis added)

The Examiner refers to Bloom's Figures 4-8, reproduced below, to assert that the "retro-reflecting structure" as recited in Claim 6 is disclosed by Bloom's structure "10" (p. 2, section 2, ll. 4-5). Applicants respectfully traverse the Examiner's assertion.

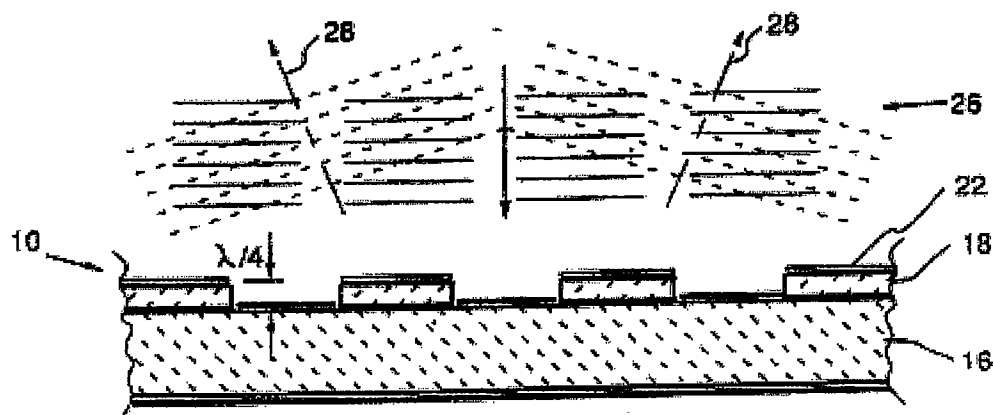


Fig. 4

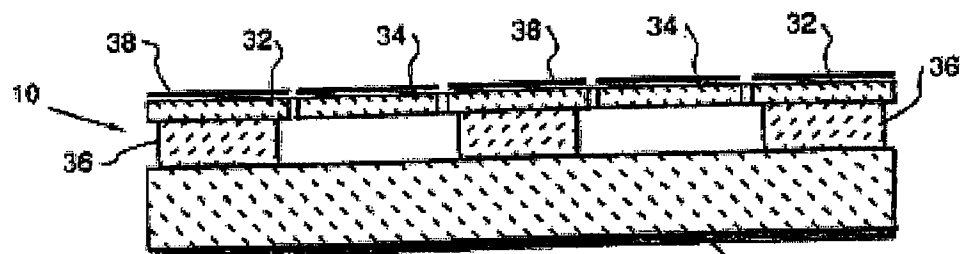
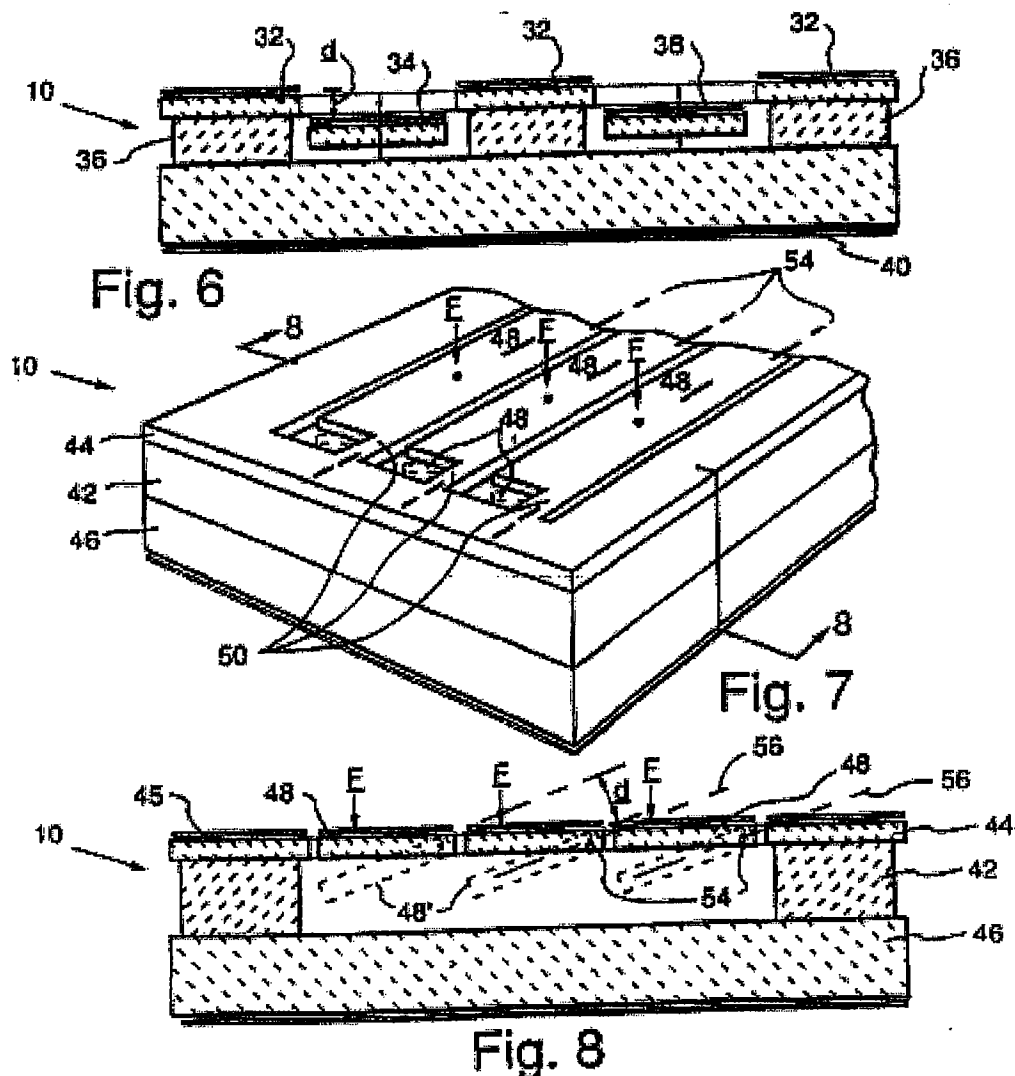


Fig. 5



According to Bloom, structure 10 functions as “plane mirror,” “flat mirror,” and/or “flat reflective surface” (c. 3, ll. 36-42; c. 6, ll. 57-63; c. 6, ll. 15-19; c. 6, ll. 50-52 and c. 7, ll. 5-9 of Bloom). Contrary to Bloom, as known in the industry, a **retroreflector** is a device that sends light or other radiation back where it came from **regardless of the angle of incidence** (see definition of the retroreflector according to Webster-Dictionary-online.com enclosed herein). This is unlike a mirror that is disclosed in Bloom, which does so only if the mirror is exactly **perpendicular** to the wave front (see Bloom’s Figure 3). Enclosed is also a partial copy of an article from www.cie.co.at that shows that in retroreflection the incident light is returned back in the direction of the source that is not

perpendicular to the surface of the retroreflector (see second figure on the right side of page 7).

Applicants submit that the Examiner failed to comply with 37 C.F.R. §1.104(c)(2) which states:

“In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes invention other than that claimed by Applicant, **the particular part relied on must be designated as nearly as practicable**. The pertinence, if not apparent, must be clearly explained and each rejected claim specified” (emphases added).

Applicants submit that the Examiner has failed to “designate as nearly as practicable” where Bloom’s device 10 is able to send light or other radiation back where it came from when the device 10 is **not perpendicular** to the angle of incidence.

Because Bloom’s device “10” is not able to send light or other radiation back where it came from **regardless of the angle of incidence**, Bloom does not teach, disclose or suggest “retro-reflecting structure” as recited in Claim 6. Hence, Claim 6 is patentable over Bloom and should be allowed by the Examiner.

B. Applicants submit that the Examiner has not shown that Bloom discloses, suggests or teaches, *inter alia*, the following features recited by Claim 6 of the present application:

“a micromechanical device for **moving the moveable grating structure** relative to the substrate” (emphasis added)

Referring to Bloom Figures 4-8, reproduced above, the Examiner asserts that the “moveable grating structure” as recited in Claim 6 is disclosed in Bloom’s grating “30” (p. 2, section 2, ll. 6-7). Applicants respectfully traverse the Examiner’s assertion.

According to Bloom, grating “30” consists of plurality of **fixed** elements 32 and plurality of **movable** elements 34 (c. 6, ll. 35-40 of Bloom). Contrary to Claim 6, Bloom moves

only a **portion** (i.e. element 34) of the grating 30 relative to the substrate (not numbered). Unlike Bloom, the “micromechanical device” of Claim 6 is for moving the **entire** “grating structure relative to the substrate,” **not just a portion** of the grating structure 30 as taught by Bloom.

Because Bloom moves only a portion of the grating 30 relative to the substrate (not numbered), Bloom does not teach, disclose or suggest “a micromechanical device for **moving the moveable grating structure** relative to the substrate” (emphasis added) as recited in Claim 6. Hence, Claim 6 is patentable over Bloom and should be allowed by the Examiner.

Claim 36-38

Claim 36-38, at least based on their dependency on Claim 6, are also patentable over Bloom and should be allowed by the Examiner.

Claim 22

Applicants submit that, at least for the reasons stated above for Claim 6, Bloom does not teach, disclose or suggest “a retro-reflecting structure” as recited in Claim 22. Hence, Claim 22 is patentable over Bloom and should be allowed by the Examiner.

Claim 23 and 25

Claim 23 and 25, at least based on their dependency on Claim 22, are also patentable over Bloom and should be allowed by the Examiner.

Claim 35

Applicants submit that, at least for the reasons stated above for Claim 6, Bloom does not teach, disclose or suggest “a retro-reflecting structure” and “a micromechanical device for moving the **moveable grating structure** between the first position and the second position” (emphasis added) as recited in Claim 35. Hence, Claim 35 is patentable over Bloom and should be allowed by the Examiner.

Claim 39-40

Claim 39-40, at least based on their dependency on Claim 35, are also patentable over Bloom and should be allowed by the Examiner.

35 U.S.C. §103(a) rejection in view of Shoyu (JP 2004-138996) and Bloom

Claims 1, 5 and 33-34 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Shoyu and further in view of Bloom. As discussed during a telephone conference on February 6, 2008, Shoyu does not qualify as prior art and the rejection should be withdrawn.

35 U.S.C. §103(a) rejection in view of Bloom

Claims 24 and 26 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Bloom.

Applicant submits that Claims 24 and 26, at least based on their dependency on Claim 22, are believed to be patentable over Bloom, because there is no prima facie 35 USC 103(a) case based on Bloom, as shown above.

* * *

Conclusion

In view of the above, reconsideration and allowance of all the claims are respectfully solicited.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

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February 27, 2008

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Encls:
Definition of the retroreflector according
to Webster-Dictionary-online.com;
Copy of an article from www.cie.co.at.



Webster's Online Dictionary
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RETROREFLECTOR

Specialty Definition: RETROREFLECTOR

Domain Definition

Aerospace Any instrument used to cause reflected rays to return along paths parallel to those of their corresponding incident rays. Also called **retroreflector**. One type of **retroreflector**, the corner reflector, is an efficient radar target. ([references](#))

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Specialty Definition: Retroreflector

(From [Wikipedia](#), the free Encyclopedia)

→ A **retroreflector** is a device that sends light or other radiation back where it came from regardless of the angle of incidence, unlike a mirror, which does that only if the mirror is exactly perpendicular to the light beam. This effect can be commonly obtained in two ways: with a set of three perpendicular mirrors (a corner reflector) and with a transparent sphere of material with refractive index 2.

A retroreflector may consist of many very small versions of these structures incorporated in a thin sheet or in paint. In the case of paint containing glass beads, the paint glues the beads to the surface where retroreflection is required, and the beads protrude, their diameter being about twice the thickness of the paint.

A third, much less common way of producing a retroreflector is to use the nonlinear optical phenomenon of phase conjugation. This technique is used in advanced optical systems such as high-power lasers and optical transmission lines.

Retroreflectors on roads

Retroreflection (sometimes called retroflection) is used on road surfaces, road signs, vehicles and clothing (large parts of the surface of special safety clothing, less on regular coats). When the headlights of a car illuminate a retroflective surface, the reflected light is directed towards the car and its driver, and not wasted by going in all directions as with diffuse reflection. However, a pedestrian can see a retroflective surface in the dark only if there is a light source directly between them and the reflector, e.g. a torch they carry, or directly behind them, e.g. a car approaching from behind.

Cats' eyes are retroreflectors in the road surface that can withstand being driven over. They were invented in 1933 by Percy Shaw of Yorkshire in England.

Corner reflectors are better at sending the light back to the source over long distances, while spheres are better at sending the light to a receiver somewhat off-axis from the source, as when the light from headlights is reflected into the driver's eyes.

Retroreflectors on the Moon

The Apollo 11, 14, and 15 missions left retro-reflectors on the Moon as part of a laser ranging experiment, the Lunar Laser Ranging Experiment.

External links

- http://www.lpl.usra.edu/expmoon/Apollo15/A15_Experiments_LRRR.html

Source: adapted by [the editor](#) from [Wikipedia](#), the free encyclopedia under a [copyleft GNU Free Documentation License \(GFDL\)](#) from the article "Retroreflector."

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Crosswords: RETROREFLECTOR

Specialty definitions using "RETROREFLECTOR": [retroreflector](#). ([references](#))

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Frequency of Internet Keywords: RETROREFLECTOR

The following statistics estimate the number of searches per day across the major English-language search engines as identified by various trade publications. Hyperlinks lead to commercial use of the expression at [Amazon.com](#).

Expression	Frequency per Day
retroreflector	4
hollow retroreflector	3

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Derivations: RETROREFLECTOR

Derivations

Words beginning with "RETROREFLECTOR": [retroreflectors](#). ([additional references](#))

Source: compiled by [the editor](#), based on several corpora ([additional references](#)).

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Anagrams: RETROREFLECTOR

Scrabble® Enable2K-Verified Anagrams

Words within the letters "c-e-e-e-f-l-o-o-r-r-r-r-t-t"

-5 letters: reflector.

Words containing the letters "c-e-e-e-f-l-o-o-r-r-r-r-t-t"

+1 letter: retroreflectors.

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Alternative Orthography: RETROREFLECTOR

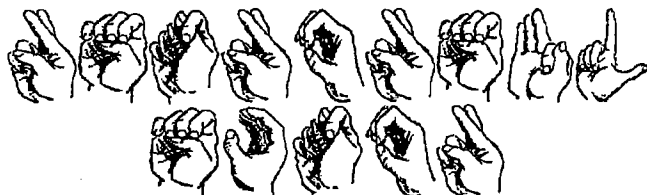
Hexadecimal (or equivalents, 770AD-1900s) ([references](#))

52 45 54 52 4F 52 45 46 4C 45 43 54 4F 52

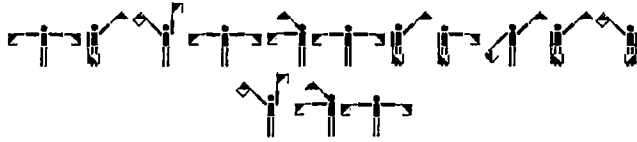
Leonardo da Vinci (1452-1519; backwards) ([references](#))



American Sign Language (origins from 1620-1817 in Italy and, especially, France) ([references](#))



Semaphore (1791, in France) ([references](#))



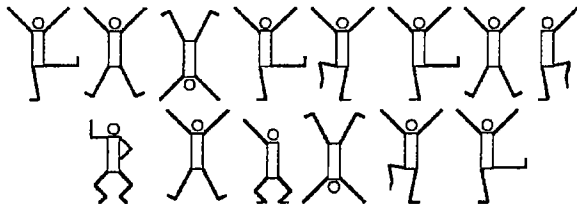
Braille (1829, in France) ([references](#))



Morse Code (1836) ([references](#))



Dancing Men (Sir Arthur Conan Doyle, 1903) ([references](#))



Binary Code (1918-1938, probably earlier) ([references](#))

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01000101 01000110 01001100 01000101 01000011 01010100
01001111 01010010
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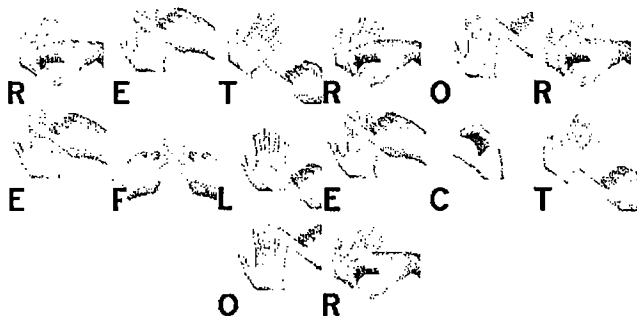
HTML Code (1990) ([references](#))

```
&#82 &#69 &#84 &#82 &#79 &#82 &#69 &#70 &#76 &#69 &#67 &#84
&#79 &#82
```

ISO 10646 (1991-1993) ([references](#))

```
0052 0045 0054 0052 004F 0052 0045 0046 004C 0045 0043 0054
004F 0052
```

British Sign Language (Fingerspelling, BSL; 1992, British Deaf Association Dictionary of British Sign Language) ([references](#))



Encryption (beginner's substitution cypher): ([references](#))

```
5239545249523940463937544952
```

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COMMISSION INTERNATIONALE DE L'ECLAIRAGE
INTERNATIONAL COMMISSION ON ILLUMINATION
INTERNATIONALE BELEUCHTUNGSKOMMISSION

TECHNICAL REPORT

ROAD TRANSPORT LIGHTING FOR DEVELOPING COUNTRIES

CIE 180:2007

UDC: 628.971
628.971.6

Descriptor: Exterior lighting
Street lighting

2.2.8 Reflection characteristics

There are basically three types of reflection (see figure below). In specular reflection the light is not scattered but leaves the surface in one direction only, directly opposite to its direction of arrival, as in a mirror. A very wet road surface behaves in this way. In contrast, a perfectly diffuse reflector scatters light in all directions, in such a way that the luminance is the same for all angles of viewing (matt paper approximates to a perfect diffuser: white paper scatters far more than black, but the distribution of the scattered light is the same). In retroreflection the incident light is returned back in the direction of the source, with a very small spread in the light around this particular direction. Although one of the earliest retroreflective road markings was inspired by nature - the cat's eye - practical retroreflectors are manmade, and produced as either discrete items or in the form of sheets and panels. (See Chapter 3).

Most surfaces display a combination of specular and diffuse behaviour, with the specular becoming increasingly noticeable for large angles of incidence and observation (measured from the vertical), which is particularly the case for road surfaces. The reflection factors for typical road surfaces have been measured and tabulated.

